REMARKS

In response to the above-identified Office Action, Applicants seek reconsideration of the application. In this response, no claims are canceled, no claims are added, and no claims are amended. Accordingly, Claims 1-19 are pending.

I.   Claims Rejected under 35 U.S.C. §103

Claims 1, 4-8, 11-14 and 17-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 005774710A to Chung (Chung) in view of U.S. Publication No. 005878255A to Tran et al. (Tran). Applicants respectfully disagree with this rejection.

Claim 1 recites a method comprising: [1] determining a target of a branch instruction; [2] storing the target of the branch instruction; [3] [the target of the branch instruction is stored] before the branch instruction is fully executed; and [4] re-encountering the branch instruction and predicting a target for the branch instruction by accessing the stored target for the branch instruction. In rejecting Claim 1, the Patent Office asserts that Chung teaches limitations [1], [2] and [4]; and asserts that limitation [3] is taught by Tran.

First, Applicants respectfully submit that combination of Chung and Tran fails to teach or suggest storing the target of the branch instruction before the branch instruction is fully executed, as required in Claim 1. To render a claim obvious, all elements of that claim must be taught or suggested by at least one properly combined reference.

In the Office Action, the Patent Office notes that Chung "does not mention that the target of the branch instruction is stored before the branch [instruction] is fully executed." As to this claim limitation, the Patent Office asserts that Tran teaches "branch targets (successor index col. 10 lines 21-27)" (see section 8 of the Office Action), and that "successor index which is used for addressing the instruction cache to fetch the branch instruction's predicted successor (target)" (see section 49 of the Office Action).

Consequently, the Patent Office has not identified and Applicants are unable to find any teaching or suggestion in Tran of storing the target of the branch instruction before the branch instruction is fully executed, as required by Applicants' claim 1. Specifically, as pointed out by the Patent Office, the successor index of Tran is an index used to look up the successive instructions in instruction cache storage 252. Hence, Applicants respectfully request the Patent Office withdraw the rejection identified above for claim 1.

Next, Applicants respectfully submit that combination of Chung and Tran fails to teach or suggest re-encountering the branch instruction and predicting a target for the branch instruction by

accessing the stored target for the branch instruction, as required in Claim 1. In the Office Action, the Patent Office asserts that Tran teaches that "If the correctly predicted branch is re-encountered, then the stored prediction information, in update register 256, will be accessed again"(see section 49 of the Office Action). The teaching in Tran referred to here is that multiplexer 257 selection of either branch prediction array 255 output or branch prediction data 256 values is made based on whether the value of branch holding register 250 value is equal to the value of current fetch PC 251.

Consequently, the Patent Office has not identified and Applicants are unable to find any teaching or suggestion in Tran of predicting a target for the branch instruction by accessing the stored target for the branch instruction, as required by Applicants' claim 1. Specifically, it can be said that what is stored in branch prediction data 256 may be an output of multiplexer 257, and thus branch prediction unit 220, however, the value at branch prediction data 256 is not used to select that output. Hence, Applicants respectfully request the Patent Office withdraw the rejection identified above for claim 1, for at least this second reason.

As to independent Claim 8, Applicant respectfully submits that the combination of Chung and Tran fails to disclose or suggest "a cache to store the target of the branch instruction before the branch instruction is fully executed" and " a branch prediction unit to, upon re-encountering the branch instruction, predict the target of the branch instruction by accessing the target of the branch instruction stored in the cache," as recited in this claim. The arguments above with respect to claim 1 apply to claim 8 as well. Hence, Applicants respectfully request the Patent Office withdraw the rejection identified above for claim 8, for at least the same reasons as noted above for claim 1.

With respect to independent Claim 14, Applicant respectfully submits that the combination of Chung and Tran fails to disclose or suggest "a cache to store the target of the branch instruction before the branch instruction is fully executed by the processor" and " a branch prediction unit to, upon re-encountering the branch instruction, predict the target of the branch instruction by accessing the target of the branch instruction stored in the cache," as recited in this claim. The arguments above with respect to claim 1 apply to claim 14 as well. Hence, Applicants respectfully request the Patent Office withdraw the rejection identified above for claim 14, for at least the same reasons as noted above for claim 1.

Regarding dependent Claims 4-7, 11-13 and 17-19, Applicants submits that these claims are not obvious in view of the cited references at least for the same reasons given in connection with their base Claims 1, 8 and 14. Hence, Applicants respectfully request the Patent Office withdraw the rejection identified above for claims 4-7, 11-13 and 17-19, for at least the same reasons as noted.

In the Office Action, Claims 2, 3, 9, 10, 15 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over <u>Chung</u> in view of <u>Tran</u> and further in view of U.S. Publication No. 006601161B2 to Rappoport et al. (<u>Rappoport</u>). Applicant respectfully traverses this rejection.

As Claims 2, 3, 9, 10, 15 and 16 are each respectively dependent on independent Claims 1, 8 and 14, the discussion above with regard to the independent claims and the cited references applies here. Because the combination of <u>Chung</u> and <u>Tran</u> does not contain limitations recited in Applicant's independent claims as set forth above, and because <u>Rappoport</u> does not cure these deficiencies, the combination of <u>Chung</u>, <u>Tran</u> and <u>Rappoport</u> does not teach or suggest Applicant's dependent claims. Therefore, Claims 2, 3, 9, 10, 15 and 16 are patentable over <u>Chung</u> in view of <u>Tran</u> and further in view of <u>Rappoport</u>.
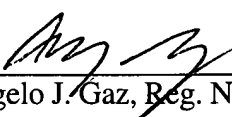
CONCLUSION

In view of the foregoing, it is submitted that the claims are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date. If there are any fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666. If a phone interview would expedite the prosecution of this Application, the Patent Office is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,
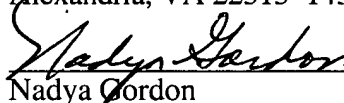
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Dated: _8/23/04_

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CERTIFICATE OF MAILING:
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313–1450, on _8/23/04_ .

Nadya Gordon   8/23/04
                                                Date